

Clean Version of Pending Claims



8. (Amended) A method for etching a silicon wafer using  $\text{XeF}_2$ , comprising steps of:

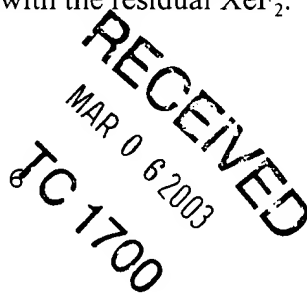
(a) etching a silicon wafer using an etching apparatus comprising a loading chamber for loading  $\text{XeF}_2$ , an expansion chamber for collecting sublimated  $\text{XeF}_2$  from the said loading chamber, and an etching chamber for etching using  $\text{XeF}_2$  supplied from the said expansion chamber;

C.1 (b) eliminating air moisture in each chamber to prevent formation of HF by injecting nitrogen to the loading chamber, the expansion chamber or the etching chamber, and exhausting the injected nitrogen therefrom prior to the said step (a); and

(c) controlling the internal pressure of the loading chamber at a level between sublimation pressure of  $\text{XeF}_2$  and atmospheric pressure to prevent sublimation of the residual  $\text{XeF}_2$  in the loading chamber after the said step (a).

9. The method for etching a silicon wafer using  $\text{XeF}_2$  as claimed in claim 8, wherein the  $\text{XeF}_2$  gas is injected on the surface of the wafer with a viscous laminar downflow using an injector having a predefined shape provided in the etching chamber for uniform etching of the wafer in step (a).

C.2 11. The method for etching a silicon wafer using  $\text{XeF}_2$  as claimed in claim 8, including weighing the residual  $\text{XeF}_2$  gas in the loading chamber at any time during the step (a) to estimate the remaining time for performing the etching step with the residual  $\text{XeF}_2$ .



12. (Amended) A method for etching a silicon wafer using  $\text{XeF}_2$ , which method comprises:

(a) eliminating air moisture in a loading chamber, an expansion chamber, and an etching chamber to prevent formation of HF by injecting nitrogen to the loading chamber, the expansion chamber or the etching chamber and exhausting the injected nitrogen therefrom;

(b) thereafter loading  $\text{XeF}_2$  in said loading chamber;

(c) collecting sublimated  $\text{XeF}_2$  from said loading chamber in said expansion chamber;

(d) etching said silicon wafer in an etching chamber using  $\text{XeF}_2$  supplied from said expansion chamber; and

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(e) controlling internal pressure of the loading chamber at a level between sublimation pressure of  $\text{XeF}_2$  and atmospheric pressure to prevent sublimation of residual  $\text{XeF}_2$  in the loading chamber.

13. A method for etching as set forth in claim 12 including injecting said  $\text{XeF}_2$  gas on a surface of said silicon wafer with a viscous laminar downflow.

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